

REMARKS

The Office Communication dated April 20, 2004 has alleged that the Amendment that was filed on January 29, 2004 was non-responsive to the outstanding Office Action.

Specifically, the Office Communication has alleged that the Amendment cancelled all elected claims and introduced new claims drawn to a non-elected invention. The Office Communication has alleged that the basis for this conclusion is that the new claims present limitations allegedly not in the prior claims. The Office Communication has singled out the phrase "three conductive segments of DNA molecules connected to an active grain, wherein the active grain consists of a bare DNA segment" as the language not present in earlier claims that would necessitate a new search.

Applicants traverse these allegations and assert that all limitations of the phrase "three conductive segments of DNA molecules connected to an active grain, wherein the active grain consists of a bare DNA segment" were present in one or more claims that have already been examined.

I. Claim Limitations Have Been Examined

The phrase in question refers to (i) three conductive segments of DNA and (ii) an active grain. This phrase indicates that the active grain consists of a bare DNA segment. Each of these aspects of the invention have been presented and examined previously.

A. Three Conductive Segments of DNA

Applicants respectfully invite the Examiner's attention to cancelled claim 12. This claim was presented in the application as originally filed and has been Examined on the merits. Claim 12 was drawn to a method of manufacturing a circuit. Paragraph (a)(1) of claim 12 recited "two complementary strands for each side" and "one gate strand," thus describing

three strands of DNA. According to claim 12, paragraph (a)(4) these three strands are conductive. Thus, three conductive segments of DNA were examined previously pursuant to examination of claim 12.

B. Active Grain

Applicants respectfully invite the Examiner's attention to claim 12, paragraph (a)(3), which recites "active cores." Applicants assert that the term "active cores" is synonymous with "grain" or "active grain." *Compare* page 10, lines 3-5 (grain 205) and Figure 2 *with* page 12, lines 5-7 (active core 324) and Figure 3B. Therefore, the term "active grain" has already been examined in connection with examination of claim 12.

C. Bare DNA Segment

Applicants again respectfully invite the Examiner's attention to claim 12. Paragraphs (a)(3) and (a)(5) describe a protection/deprotection process by which the active core is formed with a bare DNA segment. The process involves combining the DNA with enzymes that bind the active core to protect it from transformation to a current conductor. Thus, an active core consisting of a bare DNA segment has already been examined in this application pursuant to examination of claim 12.

II. Telephonic Interview

On May 19, 2004, Examiner Marschel kindly returned a phone call from Applicant's Agent, Dr. Guy F. Birkenmeier and granted a spontaneous interview. During this conversation, Applicant's Agent presented an argument substantially the same as set forth above regarding the Office Communication. Examiner Marschel graciously acknowledged that new claims 19-29, drawn to circuits and methods of manufacturing circuits, presented in Applicant's

Amendment dated January 29, 2004 are consistent with subject matter previously elected and examined. The Examiner agreed to examine these claims upon formal presentation of the argument raised during the interview. Applicants believe that the foregoing sections satisfy this requirement and, therefore, respectfully request entry and examination of claims 19-29.

The Examiner, however, cordially declined Applicant's invitation to examine claims 13-18. The Examiner alleged that claims to an element of a circuit, *i.e.* a single electron transistor (SET) would require a new search.

The Examiner indicated that he would prepare and mail an Interview Summary to that reflect his agreement to consider claims 19-29 and set forth the reason(s) for declining to consider claims 13-18. Upon the request of Applicant's Agent, the Examiner agreed to indicate in the Interview Summary the class and subclass in which claims 13-18 are deemed to reside.

III. Request for Reconsideration of Claims 13-18

While Applicants sincerely thank the Examiner for his favorable disposition towards claim 19-29, Applicants hereby respectfully request reconsideration of claims 13-18. According to U.S. case law and the Manual of Patent Examination Procedure (MPEP), an Examiner is obligated to interpret the claims in light of the specification for the purpose of examination. *See e.g.* MPEP § 2173.05(a) ("When the **specification states the meaning** that a term in the claim is intended to have, **the claim is examined using that meaning**, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art.), citing *In re Zletz*, 893 F.2d 319 (Fed. Cir. 1989).

As originally filed, the application included claims 1 and 4, which recited:

- 1. A digital computational circuit comprising a network made of a plurality of repetitive DNA-based conductive elements.*

4. A circuit according to claim 1, wherein the DNA-based element is a DNA Single Electron Tunneling (SET) transistor.

The specification clearly discloses that a "DNA Single Electron Tunneling (SET) Transistor" comprises three M-DNA molecules (204a, 204b, and 204c) and a grain (205) at page 10, lines 1-5 and Figure 2. While cancelled claims 1 and 4 are drawn to entire circuits containing an SET, new claim 13 is drawn to the SET itself. The Examiner has not objected, however, to new claims 13-18 because they are drawn to the transistors. Rather the Examiner has objected to the claims because they set forth the composition of the SET, *i.e.* three conductive DNA segments and an active core. Specifically, the Examiner stated in the telephonic interview that a search for a component of a circuit is distinct from a search for a circuit.

Applicants respectfully disagree and assert that, according to the MPEP, rather than posing an undue search burden, examination of a claim drawn to a circuit comprising an SET should include consideration the components of the SET as defined in the specification. It follows that the examination of claims 1-12, if performed in accordance with MPEP § 2173.05(a), has already included the SET components, such that there is no reason to insist on withdrawal of these claims. On the other hand, if consideration was not given to the components of an SET during examination of claims 1-12, then Applicants respectfully submit that what is sought here is nothing more than the examination called for by MPEP § 2173.05(a).

Applicants, therefore, respectfully request withdrawal of the reasons cited in the Office Communication and the telephonic interview for not examining claims 13-18 and entry and examination of these claims.

IV. Copies of Information Disclosure Documents

The Office Communication indicated that copies of the documents cited in Applicant's Information Disclosure Statement submitted on January 29, 2004 were not received.

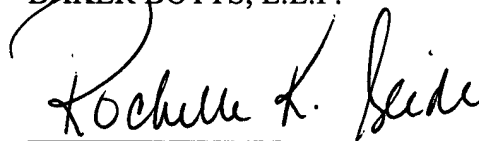
Applicants have enclosed herewith copies of three of the documents cited in Applicant's Information Disclosure Statement submitted on January 29, 2004.

Applicants have not enclosed copies of the remaining documents since Applicants believe that they are already of record. *See* Form PTO-1449 filed on August 16, 2001 and signed by Examiner Marschel on July 25, 2003. For the Examiner's convenience, Applicants enclose herewith a copy of the Form PTO-1449 filed on January 29, 2004 on which Applicants have drawn a line through the documents already of record in the instant application. Applicants and their representatives assert that the redundant citation of these references in the Information Disclosure Statements submitted on August 16, 2001 and January 29, 2004 was inadvertent and done without deceptive intent.

Applicants enclose herewith the fee required under 37 C.F.R. § 1.17(a)(1). While Applicants do not believe that any additional fees are required with this paper, the Commissioner is hereby authorized to charge any fees occasioned by this submission not otherwise enclosed herewith to Deposit Account No. 02-4377. Please credit any overpayment of fees associated with this filing to the above-identified deposit account. A duplicate of a Fee Transmittal page is enclosed.

Respectfully submitted,

BAKER BOTTS, L.L.P.

A handwritten signature in dark ink, reading "Rochelle K. Seide", is written over a horizontal line.

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Enclosures